

which this and other field work was conducted. We also thank J. V. Remsen and Mark B. Robbins for their comments and helpful suggestions on this note.

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Notes on the iris colour in females of two manakins (Pipridae)

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Plumage peculiarities whereby adult female manakins exhibit 'male-like' plumages have been summarized by Graves (1981) who also pointed out that "sex determination on the basis of iris colouration in female or immature plumaged manakin is not reliable". In reviewing recent publications on Neotropical birds in search of descriptions of the iris colour of females or immature manakins occurring in northeastern South America it became evident that some of the information available in the literature, either in the text or from colour illustrations, can be incomplete or even contradictory (Hilty & Brown 1986, Meyer de Schauensee & Phelps 1978, Ridgely 1976). On the other hand, few other authors have reported on the iris colouration of female manakins. This note describes the iris colour of females of the Crimson-hooded Manakin *Pipra aureola* and of the Golden-headed Manakin *P. erythrocephala*. The data were recorded in Venezuela and Guyane française on live birds later meticulously sexed during dissection (Table 1) and from the examination of a number of specimens in various collections.

The iris colour of the 4 females in Table 1 varies in hues of white, but is basically 'white'. Similar findings were made in 6 females in the Carnegie Museum, where the label data indicate that the basic 'white' of the iris ranges through "pure white", "rose-white", "green white", and "bright yellow white" to "leaden white". The white iris of 7 males varies also in a similar manner and is "white". These findings emphasize that the iris colour of female *Pipra aureola* is at times inaccurately depicted in

TABLE 1
Summary of skull condition and iris colour of fresh specimens of *Pipra aureola* and *P. erythrocephala*

Sex	Skull condition	Locality	Date	Iris colour
<i>Pipra aureola</i>				
f ¹	ossified	Ven., El Furrial	22 Mar 1988	white
f ¹	partly ossified	Ven., El Furrial	22 Mar 1988	pinkish white
f	ossified	G.fr., Sinnamary	13 Mar 1989	cream white
f	ossified	G.fr., Sinnamary	20 Mar 1989	lilac white
<i>Pipra erythrocephala</i>				
f	ossified	Ven., El Furrial	29 Mar 1988	greyish white
f	ossified	G.fr., Sinnamary	12 Mar 1989	dark brown
f	non-ossified	G.fr., Sinnamary	14 Mar 1989	dark brown

¹traces of bright plumage as *per* Graves (1981).

G.fr. = Guyane française.

Ven. = Venezuela, Monagas.

illustrations and that this can be misleading for future taxonomic purposes.

In *Pipra erythrocephala* the situation appears to be more complex, because 2 females with ossified skulls had differently coloured irides—greyish white and dark brown—whereas the irides were dark brown in a female with a non-ossified skull (Table 1). At present it is not known whether this is the result of geographic variation nor what is the extent of individual variation in iris colour of female *P. erythrocephala* and its relation to age. Whether the iris colour of mature female *P. erythrocephala* is white or dark brown is unknown, nor whether it varies seasonally or during the breeding cycle itself. Until some of these questions are given an answer, ornithologists using live birds with a dull plumage resembling that of females cannot be certain either of the sex or age of the birds they are studying.

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